

ABSTRACT

The present invention relates to simplified processes for the preparation of pure hydrogen peroxide (H₂O₂). H₂O₂ is a known oxidizer and disinfectant that is used in many industrial processes having many uses in the pharmaceutical, electronic, food and water purification industries. The present invention presents the use of sulfuric acid (H₂SO₄) as a catalyst utilizing water and electricity as the only raw materials for the production of H₂O₂. Separation processes are performed with membranes. Produced hydrogen is used as a fuel in a fuel cell, thereby reducing electrical cost.

H₂O₂ is an ideal oxidizer and disinfectant in water purification systems, especially drinking water purification. All other disinfectants create disinfection by-products upon their reaction with Natural Organic Matter (NOM) in the water. Pure H₂O₂ is a requirement for the electronics industry in the production of printed circuit boards. By producing H₂O₂ without organic chemistry, organic contamination of H₂O₂ is minimized.

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